

4 COURSE B – INSTRUMENTATION OF QUESTIONED DOCUMENT EXAMINATION	Page 1 of 4
Division of Forensic Science QUESTIONED DOCUMENTS TRAINING MANUAL	Amendment Designator:
	Effective Date: 1-April-2004
<p style="text-align: center;">4 COURSE B- INSTRUMENTATION OF QUESTIONED DOCUMENT EXAMINATION</p> <p>4.1 Scope</p> <p>4.1.1 The physics of Light (approximately 24 hours)</p> <p>4.1.2 Microscopy (approximately 22 hours)</p> <p>4.1.3 Video Spectral Comparator (approximately 22 hours)</p> <p>4.1.4 The Infrared Microscope (approx 10 hours)</p> <p>4.1.5 The Ultraviolet Light Viewer (approximately 10 hours)</p> <p>4.1.6 The ESDA (approximately 20 hours)</p> <p>4.1.7 Other Lab Equipment (approximately 60 hours)</p> <p style="padding-left: 40px;">4.1.7.1 Laser</p> <p style="padding-left: 40px;">4.1.7.2 Image enhancement</p> <p style="padding-left: 40px;">4.1.7.3 Soft X-rays</p> <p style="padding-left: 40px;">4.1.7.4 Comparison Microscope</p> <p style="padding-left: 40px;">4.1.7.5 SEM</p> <p style="padding-left: 40px;">4.1.7.6 Spectrophotometer</p> <p style="padding-left: 40px;">4.1.7.7 Gas Chromatography</p> <p style="padding-left: 40px;">4.1.7.8 HPLC</p> <p>4.1.8 Examination/PE (approximately 8 hours)</p> <p>4.2 Objective</p> <p>To provide instruction in the theory and operation of instrumentation in the Questioned Document Section</p> <p>4.3 Methods of Instruction</p> <p>Self directed study, practicals, demonstration, and lecture</p> <p>4.4 References</p> <p>4.4.1 The physics of Light</p> <ul style="list-style-type: none"> • Radly, J. A. & Grant, J., <u>Fluorescence Analysis in Ultraviolet Light</u>, Chapman & Hall, Ltd., London, 1943, Chap 1 • Technical articles (as assigned) 	

4 COURSE B – INSTRUMENTATION OF QUESTIONED DOCUMENT EXAMINATION	Page 2 of 4
Division of Forensic Science QUESTIONED DOCUMENTS TRAINING MANUAL	Amendment Designator:
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<p>4.4.2 Microscopy</p> <ul style="list-style-type: none"> • Saferstein, Richard, <u>Forensic Science Handbook</u>, Prentice-Hall Inc., 1981, Chap 9 • Smith, Robert F., <u>Microscopy and Photomicrography: A Working Manual</u>, CRC Press, 1990, Chapters 1,2 • Technical articles (as assigned) <p>4.4.3 Video Spectral Comparator</p> <ul style="list-style-type: none"> • Installation and Instruction Manual • Technical articles (as assigned) <p>4.4.4 The Infrared Microscope</p> <ul style="list-style-type: none"> • Instruction manual for Model J IR scope (if available) • Technical articles (as assigned) <p>4.4.5 The Ultraviolet Light Viewer</p> <ul style="list-style-type: none"> • Harrison, Wilson R., <u>Suspect Documents: Their Scientific Examination</u>, Frederick A. Praeger, NY, 1958, pp 82-83, 89-93 • Radly, J.A. & Grant, J., <u>Fluorescence Analysis in Ultraviolet Light</u>, Chapman & Hall, Ltd., London, 1943, Chap 10 • Technical articles (as assigned) <p>4.4.6 The ESDA</p> <ul style="list-style-type: none"> • Hilton, Ordway, <u>Scientific Examination of Questioned Documents</u>, Elsevier North Holland, Inc., NY, 1982, pp 138-141 • Ellen, D., <u>The Scientific Examination of Documents: Methods and Techniques</u>, Taylor & Francis, Ltd., 1997, pp 138-145 • Technical information booklet on the ESDA • Technical articles (as assigned) <p>4.4.7 Other Lab Equipment</p> <p>4.4.7.1 Laser</p> <ul style="list-style-type: none"> • Technical articles (as assigned) <p>4.4.7.2 Image Enhancement</p> <ul style="list-style-type: none"> • Baxes, Gregory A., <u>Digital Image Processing: A Practical Primer</u>, Cascade Press, Marina Del Rey, CA, 1988, pp 1-31 • Technical articles (as assigned) <p>4.4.7.3 Soft X-rays</p> <ul style="list-style-type: none"> • Graham, Daniel, <u>The Use of X-Ray Techniques in Forensic Investigations</u>, Edinburgh & London, 1973, pp 1-22, 97-121, 137-140 • Technical articles (as assigned) <p>4.4.7.4 Comparison microscope</p> <ul style="list-style-type: none"> • Ellen, D., <u>The Scientific Examination of Documents: Methods and Techniques</u>, Taylor & Francis, Ltd., 1997, p 164 • Technical articles (as assigned) 	

4 COURSE B – INSTRUMENTATION OF QUESTIONED DOCUMENT EXAMINATION	Page 3 of 4
Division of Forensic Science QUESTIONED DOCUMENTS TRAINING MANUAL	Amendment Designator:
	Effective Date: 1-April-2004
<div> <div>4.4.7.5 SEM</div> <ul style="list-style-type: none"> • Saferstein, R., <u>Criminalistics: An Introduction to Forensic Science</u>, Prentice Hall Inc., 1977, pp 168-171 • Technical articles (as assigned) <div>4.4.7.6 Spectrophotometer</div> <ul style="list-style-type: none"> • Saferstein, R., <u>Criminalistics: An Introduction to Forensic Science</u>, Prentice Hall Inc., 1977, pp 109, 121-131 • Technical articles (as assigned) <div>4.4.7.7 Gas Chromatography</div> <ul style="list-style-type: none"> • Saferstein, R., <u>Criminalistics: An Introduction to Forensic Science</u>, Prentice Hall Inc., 1977, pp 110-116 • Technical articles (as assigned) <div>4.4.7.8 HPLC</div> <ul style="list-style-type: none"> • Saferstein, R., <u>Criminalistics: An Introduction to Forensic Science</u>, Prentice Hall Inc., 1977, pp 116-117 • Ellen, D., <u>The Scientific Examination of Documents: Methods and Techniques</u>, Taylor & Francis, Ltd., 1997, p 116 • Technical articles (as assigned) </div>	
<div> <div>4.5 Standards</div> <div> <div>4.5.1</div> <div>Student must be able to explain the light spectrum, the measurement of light energy, and the phenomena of luminescence, fluorescence, and phosphorescence.</div> </div> <div> <div>4.5.2</div> <div>Student must be able to describe the functions of the principal parts of a microscope, calculate magnification, and demonstrate the focusing of a stereo microscope</div> </div> <div> <div>4.5.3</div> <div>Student must be able to describe the functions of the principal parts of the Video Spectral Comparator and demonstrate its use.</div> </div> <div> <div>4.5.4</div> <div>Student must be able to describe the functions of the principal parts of the laser and demonstrate its use.</div> </div> <div> <div>4.5.5</div> <div>Student must be able to describe the functions of the principal parts of the Ultraviolet viewer and demonstrate its use.</div> </div> <div> <div>4.5.6</div> <div>Student must be able to describe the functions of the principal parts of the ESDA and demonstrate it use. Student must also be able to describe alternate methods of detecting and deciphering indented writing on documents.</div> </div> <div> <div>4.5.7</div> <div>Student must be able to explain the general theory of image enhancement.</div> </div> <div> <div>4.5.8</div> <div>Student must be able to explain the functions of the comparison microscope, SEM, Gas Chromatography, Spectrophotometer, Soft X-rays, and High Pressure Liquid Chromatography as each applies to Forensic Document Examination.</div> </div> </div>	
<div> <div>4.6 Verification</div> <div> <div>4.6.1</div> <div>Student must score at least 80 on a written test.</div> </div> </div>	

4 COURSE B – INSTRUMENTATION OF QUESTIONED DOCUMENT EXAMINATION	Page 4 of 4
Division of Forensic Science	Amendment Designator:
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<div>4.6.2 Student must (to the instructor's satisfaction) complete a comprehensive practical exercise demonstrating the use of each instrument covered.</div> <div>4.6.3 Student will have 180 hours to complete Course B.</div> <div>► End</div>	